WHAT IS CLAIMED IS:

1. A monitoring device operating on a fiber optic network, the monitoring device comprising:

an input port for receiving a wavelength division multiplexed optical signal including a plurality of optical signals centered at different wavelengths within a range of wavelengths;

a dispersion device disposed to disperse the wavelength division multiplexed optical signal into a discrete power spectrum;

a pixelated optical detector having a point spread function and optically coupled to receive and convert the discrete power spectrum into electrical signals; and

at least one computing device receiving digital data representative of the electrical signals, performing a deconvolution operation on the digital data to compensate for the point spread function of the pixelated detector, and generating compensated output data representative of the optical signals.

2. The monitoring device according to claim 1, wherein said at least one computing device further transforms the digital data to the frequency domain.

3. The monitoring device according to claim 2, wherein the transformation includes performing a fast Fourier transform (FFT).

4. The monitoring device according to claim 2, wherein said at least one computing device utilizes a filter representative of the point spread function of said pixelated optical detector.

5. The monitoring device according to claim 4, wherein the filter is utilized during the deconvolution operation.

6. The monitoring device according to claim 1, wherein said at least one computing device further

transforms the compensated output domain to the spatial domain.

7. The monitoring device according to claim 1, further comprising at least one of the following:

a display coupled to said at least one computing device for displaying the compensated output data,

a communication device coupled to said at least one computing device for transmitting the compensated output data.

8. The monitoring device according to claim 1, wherein the wavelength range of the wavelength divisional multiple optical signal includes at least one of the following:

the optical L-band,

the optical C-band, and

the optical S-band.

9. A method for improving a signal-to-noise ratio measurement range of a monitoring device operating on a fiber optic network, the method comprising:

receiving a wavelength division multiplexed optical signal including a plurality of optical signals centered at different wavelengths within a range of wavelengths;

dispersing the wavelength division multiplexed optical signal into a discrete power spectrum;

measuring the discrete power spectrum by a pixelated optical detector, the measured optical signals including a point spread function response of the pixelated optical detector;

generating data representing the measured optical signals;

performing a deconvolution operation on the generated data to compensate for the point spread function of the pixelated optical detector; and

generating compensated output data representative of the optical signals.

10. The method according to claim 9, further comprising:

transforming the generated data to the frequency domain prior to performing the deconvolution operation.

11. The method according to claim 10, wherein said transforming includes performing a fast Fourier transform (FFT) on the generated data.

12. The method according to claim 9, further comprising:

measuring a known calibration optical signal by the pixelated optical detector; and

generating a filter based upon the measured known calibration optical signal, wherein performing the deconvolution operation utilizes the filter to compensate for the point spread function of the pixelated optical detector.

13. The method according to claim 12, wherein the known calibration optical signal has a substantially Gaussian beam profile.

14. The method according to claim 12, wherein the filter is utilized during the deconvolution operation in the frequency domain.

15. The method according to claim 9, further comprising:

determining a current operating temperature of the pixelated optical detector; and

loading a filter generated at an operating temperature closest to the current operating temperature.

16. The method according to claim 9, wherein the deconvolution operation further includes filtering the generated data to compute the compensated output data in the frequency domain.

17. The method according to claim 16, further comprising transforming the compensated output data to the spatial domain.

18. The method according to claim 17, wherein the transforming includes performing an inverse fast Fourier transform (IFFT).

19. The method according to claim 9, further comprising displaying the compensated output data representative of the discrete power spectrum.

20. The method according to claim 9, wherein the wavelength range includes at least one of the following:

the optical L-band,

the optical C-band, and

the optical S-band.

21. A method for calibrating an optical performance monitor having a pixelated optical detector for improving an optical signal-to-noise ratio measurement range of the optical performance monitor, the method comprising:

measuring a known calibration optical signal applied to the pixelated optical detector;

generating data representative of the measured known calibration optical signal;

transforming the generated data into the frequency domain;

loading data representative of expected data of the known calibration optical signal in the frequency domain; and

generating a filter in the frequency domain based on the generated and expected data, the filter being utilized to improve the signal-to-noise ratio measurement range of the optical performance monitor.

22. The method according to claim 21, further comprising storing the filter.

23. The method according to claim 21, wherein the known calibration optical signal has a substantially Gaussian beam profile.

24. The method according to claim 21, wherein the known calibration optical signal is a plurality of calibration optical signals, each calibration optical signal being measured simultaneously.

25. The method according to claim 21, further comprising:

adjusting an operating temperature of the pixelated optical detector of the optical performance monitor prior to measuring the known optical signal; and

storing the generated filter using the generated data at the adjusted operating temperature.

26. A computer-readable medium having stored thereon sequences of instructions, the sequences of instructions including instructions, when executed by a processor of an optical performance monitor, causes the processor to:

load filter data representative of differences between a known calibration optical signal and an expected measurement of the known calibration optical signal;

receive measured data representative of at least one optical signal from a pixelated optical detector;

deconvolve the measured data utilizing the loaded filter data to produce corrected data; and

output the corrected data.

27. The computer-readable medium according to claim 26, wherein the known calibration optical signal has a substantially Gaussian beam profile.

28. The computer-readable medium according to claim 26, wherein the instructions to deconvolve include dividing the measured data with the filter data in the frequency domain.